Item 44 FY97
04DS1
August 1, 1995

PURCHASE DESCRIPTION

POWER METER TEST SET

WA0FW-H

1.0 GENERAL This procurement requires a power meter test set capable of measuring continuous wave (CW) radio frequency (RF) power levels over the frequency range of 100 kHz to 4.2 GHz.

2.0 CLASSIFICATION The equipment shall meet the requirements of MIL-T-28800( ), Type III, Class 5, Style E, Color R for Navy shipboard, submarine and shore applications with the following modifications and exceptions:

a. Electromagnetic Interference requirements of MIL-T-28800( ) are limited to CE01 (relaxed 20 dB), CE03 (broadband limits relaxed 20 dB below 200 kHz), CS01, CS02 (0.05 to 100 MHz), CS06, RE01 (0.03 to 15 kHz), RE02 (14 kHz to 1 GHz) and RS03.

3.0 OPERATIONAL REQUIREMENTS The test set shall respond to average power and indicate the RMS power of CW and pulsed RF signals within the parameters and accuracies specified below.

3.1 Power Meter

3.1.1 Frequency Range: At least 100 kHz to 4.2 GHz

3.1.2 Power Range: -25 dBm (3 μW) to + 35 dBm (3W)

3.1.3 Meter Indicator / Readout
3.1.3.1 Display: Digital

3.1.3.1.1
Resolution: At least 0.01 dB (i.e., 4-1/2 digits)
3.1.3.1.2
Analog peaking indicator: Meter or bargraph
3.1.3.1.3
Units: dBm / relative dB / watts

3.1.3.2 Stability: Drift shall be ≤ 1.5% of full scale on the most sensitive scale (in a 5 minute period following warm-up @ 25°C ±10°C) in a non- averaging mode of operation and irrespective of the power sensor configuration.

3.1.3.2.1 Zero Set: Manual or automatic zeroing of power sensor indication

3.1.4 Reference
3.1.4.1 Frequency: 50 MHz nominal
3.1.4.2 Level: 1 mW / 0.0 dBm
3.1.4.2.1 Accuracy: ±1.5% / year @ 25°C ±10°C

3.2 Power Sensor (s) (avg responding / true rms reading)

3.2.1 Impedance: 50 Ω
3.2.2 Overload Protection: capable of withstanding max powers with no damage.
3.2.2.1 Max Power:300 mW ave / 15 W pk [<100 mW range]
3.5 W ave / 100 W pk [>100 mW range]
3.2.2.2 Overload Indication: The meter shall indicate an overrange condition when the rms power level exceeds the operating range of the sensor.

3.2.3 Connector: Type N (male)
3.2.3.1 VSWR:≤1.6:1 [F < 300 kHz]
≤1.3:1 [F > 300 kHz]

3.2.4 Measurement Uncertainty (RSS): ±5.0%, not including source mismatch over the entire frequency range of 3.1.1

3.2.5 Sensor Cables
3.2.5.1 Length: 1.5 m (5 ft) minimum

3.2.6 Calibration: Manual or electronic entry of sensor cal factor vs frequency

3.2.6.1 Non-volatile storage: Cal factors for at least two sensors with up to 20 frequencies stored

3.3 Pulsed RF Requirements (Pk pwr level < 20 dB above CW power)

3.3.1 Minimum pulse width: ≤ 5 μsec

3.3.2 Duty cycle: 0.1% to 100%

3.3.3 Pulse repetition frequency (PRF): 30 Hz to 500 kHz

4.0 GENERAL REQUIREMENTS

4.1 Power Source MIL-T-28800 nominal power source requirements invoked. P(max) < 25 W

4.2 Lithium Batteries Per MIL-T-28800, lithium batteries are prohibited without prior authorization. Requests for approving the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.

4.3 Weight The overall weight of the unit shall not exceed 15 kg (33 lb).

4.4 Calibration Interval The calibration interval shall be 12 months minimum. The equipment shall be within all accuracy requirements specified herein, with a 72% or greater confidence factor following a calibration interval of 12 months.

4.5 Remote Operation The unit shall be capable of remote operation as a talker via the IEEE-488( ) bus interface.

4.6 Transit Case The transit case shall provide protection for all components of the power measuring test set.